

Space for Wildlife

Leicester, Leicestershire and Rutland Biodiversity Action Plan

2010 – 2015

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1. Introduction

1.1 Leicestershire and Rutland Biodiversity Action Plan

Biodiversity is the variety of life in all its forms and the habitats where it occurs.

In 1992, at the 'Earth Summit' in Rio de Janeiro, the UK Government signed the Biodiversity Convention. This was followed up by the publication of *Biodiversity: The UK Action Plan*, in 1994, with the stated goal 'to conserve and enhance biological diversity in the UK...'. One way this is to be achieved is through Local Biodiversity Action Plans, which aim to focus resources to conserve and enhance biodiversity by means of local partnerships, taking account of national and local priorities.

To this end surveys of the local habitat resource (Bowen & Morris 1996) and key species (Lott 1997) in Leicestershire and Rutland, were published. A working group of representatives from 19 organisations, lead by Leicestershire and Rutland Wildlife Trust, used this information to draw up the local plan, "Biodiversity Challenge: An Action Plan for Leicester, Leicestershire and Rutland", which was produced in 1998.

In essence the Leicester, Leicestershire and Rutland Biodiversity Action Plan (LLRBAP) was modelled on the National plan but concentrated on species and habitats of local conservation concern. There were 17 Habitat Action Plans and 14 Species Action Plans. When the plan was revised in 2005 Urban habitat (Leicester) and Dingy and Grizzled Skipper were added. In addition the numerous targets and actions detailed in the original plan were considerably reduced in number and simplified.

1.2 Wildlife habitats – the current resource

Habitats are the places where wildlife lives. Habitats differ in the type and quantity of different wildlife species they can support. Intensively managed farmland is poor for wildlife whilst land which is less intensively managed with little or no applications of chemical fertiliser, pesticides and herbicides is much richer in wildlife.

In Leicestershire and Rutland where more than 80% of the land is farmed, good habitats for wildlife are now few and far between and much of our wildlife is being squeezed out and continues to decline.

This is a reflection of the national picture where many of the UK Biodiversity Indicators show a long term decline over the period 1970 to 2007 (*UK Biodiversity Indicators in Your Pocket 2009*, DEFRA 2009, www.jncc.gov.uk/biyp).

As the key facts box below illustrates, Leicestershire and Rutland are amongst the poorest counties in the UK for sites of recognised nature conservation value. The very best sites (Sites of Special Scientific Interest, SSSI) represent only about 2% of the land area (ca. 1.3% for Leicestershire). The resource of nationally important habitats is even smaller: for instance there are only;

- 38ha of calcareous grassland (28ha on SSSI, 10 ha non-SSSI),

- 134 ha of heath grassland (34 ha on SSSI),
- 0.3 ha wet heath,
- 1165 ha of species rich neutral grassland (407 ha on SSSI)*.

These important or BAP priority habitats comprise only a very small proportion of the area of Leicestershire and Rutland. In addition, many habitats are clustered in specific areas (for instance Charnwood Forest, East Rutland) with large parts of the two counties containing little or no priority habitat.

Furthermore in the years since the original LLRBAP was published there has been very little creation of new UK BAP Priority Habitat and the result is that there has probably been little or no increase in the resource (and in the case of unimproved neutral grassland the resource has probably declined as sites continue to be lost).

Where the LLRBAP has had success is in promoting the creation of local habitats. Many of the best examples of local conservation and habitat creation schemes have generated new habitats which fall outside those defined in the UKBAP and yet these have had a significant positive impact on local wildlife. Good examples are the new nature reserves in the Soar valley at Cossington Meadows and Wanlip Meadows; wetland creation at Rutland Water and much of the work in the National Forest.

If the LLRBAP was to focus solely on high quality national priority habitats, it would fail to address the poor state of wildlife in the wider countryside and would ignore some of the best local habitat creation schemes.

The scope of the LLRBAP has therefore been widened to include habitat creation in the wider countryside. This is where most of our wildlife is found and it is where many common species (farmland birds, butterflies and moths being the best documented) are in decline.

Space for Wildlife is the title of this latest version of the LLRBAP and it has three components:

1. To promote the restoration, management and creation of BAP Priority Habitats
2. To promote the creation of new wildlife habitat in the wider countryside
3. To survey, monitor and promote favourable management of existing good sites through the Local Wildlife Sites system.

In essence Space for Wildlife goes back to the broader intentions of the 1992 Biodiversity Convention - to halt the loss of biodiversity – by broadening the overall scope of the LLRBAP to also address wildlife conservation in the wider countryside.

By focussing on more than just the narrowly prescribed habitats of the UK BAP the intention is to promote a new more flexible approach to nature conservation and

*SSSI data from Bowen & Morris 1996, non SSSI data derived from LRWT LWS totals at March 2009

areas managed for wildlife in Leicestershire and Rutland which is relevant and applicable to all parts of the local landscape.

1.3 Leicestershire and Rutland – key facts

Area: 2553 sq.km (986 sq.miles)

Distance between boundaries: 72 km (44 miles) N-S; 93 km (57 miles) E-W

Altitude: mostly between 61 m and 183 m (200-600 ft)

Highest point: Bardon Hill 278 m (912 ft)

Lowest point: confluence of Rivers Soar and Trent at 27 m (90 ft)

Human population in 2001: 924,062 with 279,921 in the City

Land use:

- Farming – 84% of L&R is farmland, 82% of which is Grade 3 quality; 52% of farmland in 1992 grew cereals, oil seed rape etc
- Woodland – 4% of L&R is covered in woodland, 2% of the counties is ancient woodland, with c 50% of that semi-natural
- Urban – 6% was urban in 1992; between 1945 and 1990 the area of urban land doubled; W.Leics is much more developed than E.Leics & Rutland
- Mineral extraction – Leics, Derbys & Somerset are the 3 biggest mineral producing counties in Britain

Sites of Special Scientific Interest: 92 (80 biological) covering 5096 ha (ca 2% of counties, national av. ca 6%; SSSI cover of Leics is only ca 1.3%)

Nature Conservation Review sites: Cribb's Meadow; Leighfield Forest; Muston Meadows; River Eye; Rutland Water; Swithland Wood

Geological Conservation Review sites: Charnwood Lodge + others

Special Areas of Conservation: 1 (River Mease)

Special Protection Areas: 1 (Rutland Water)

Ramsar Sites: 1 (Rutland Water)

Environmentally Sensitive Areas: None

Areas of Outstanding Natural Beauty: None

National Parks: None.

Community Forests etc: 1 (The National Forest).

National Nature Reserves: 3 [Charnwood Lodge, Cribb's Meadow (LRWT); Muston Meadows (NE)].

Local Nature Reserves: 8+

Other nature reserves: LRWT has 34 reserves covering 1173 ha (2898 acres); 20 are SSSIs; Seaton Meadows SSSI is a Plantlife reserve; the Woodland Trust manages 20 sites covering ca 315 ha.

Local Wildlife Sites: over 1100 of these had been selected by the end of December 2010 (the total is likely to be 1500+). They perhaps cover ca 2% of counties.

Main reasons for decline in biodiversity:

- Modern farming methods
- Development (housing, roads, mineral extraction)
- Recreational activities
- Drainage schemes
- Tidying up and destruction of rough ground and 'brown-field' land

Michael Jeeves

July 2008 revised December 2010

1.4 Leicester, Leicestershire and Rutland Biodiversity Action Plan Habitats

The original Leicester, Leicestershire and Rutland Biodiversity Action Plan covered 19 habitats. Many of these are local habitats. They are listed in the table below and their correspondence to national Priority habitats is indicated.

LLRBAP Habitat	Equivalent UK Broad habitat	UK BAP habitat	Notes
Broadleaved woodland	Broadleaved Mixed and Yew Woodland	Lowland Mixed Deciduous Woodland	Exact equivalence between local and national habitat
Calcareous grassland	Calcareous grassland	Lowland Calcareous Grassland	Exact equivalence between local and national habitat
Eutrophic standing water	Standing Open Water and Canals	1. Eutrophic Standing Waters 2. Ponds	Local habitat combining two UK BAP habitats
Fast-flowing streams			No national equivalent. Covers both nutrient poor and enriched streams with significant fauna and flora assemblages
Field margins	Arable & Horticultural	Arable Field Margins	Exact equivalence between local and national habitat
Floodplain wetland			Local habitat with no national equivalent. Covers a range of new and pre-existing wetland habitats in river floodplains
Heath-grassland	Acid Grassland	Lowland Dry Acid Grassland	Partial equivalence. The local heath-grassland is a mix of dry acid grassland, wet acid grassland and acid grassland (wet or dry) with scattered ericaceous shrubs. True heathland with vegetation dominated by ericaceous shrubs is virtually non-existent in Leicestershire and Rutland - this probably reflects the historic situation
Hedgerows	Boundary & Linear Features	Hedgerows	Partial equivalence. The local plan covers more than the ancient and species rich hedgerows of the national plan
Lowland wood-pasture and parkland	Broadleaved Mixed and Yew Woodland	Wood-Pasture & Parkland	Exact equivalence between local and national habitat
Mature trees			Local habitat with no national equivalent
Mesotrophic lakes	Standing Open Water and Canals	Mesotrophic Lakes	Partial equivalence between local and national habitat. The local habitat referred to artificial water bodies (reservoirs). This habitat no longer exists locally as all remaining mesotrophic water bodies have been severely affected by nutrient enrichment (eutrophication)

Neutral grassland	Neutral Grassland	Lowland Meadows	Equivalence between local and national habitat – however local habitat also includes lowland pastures
Reedbed	Fen, Marsh, Swamp	Reedbeds	Exact equivalence between local and national habitat
Roadside verges			No national equivalent habitat, although roadside verges encompass a number of habitat types including, calcareous and neutral grassland
Rocks and built structures			No national equivalent. The local habitat covers both natural and man-made structures of importance for lichens and bryophytes
Sphagnum ponds			No national equivalent – acidic ponds with locally important fauna and flora assemblages
Springs and flushes			No national equivalent although related to Fen, Marsh and Swamp broad habitat
Urban habitat			No national equivalent. A wide ranging plan covering all aspects of wildlife and biodiversity in the city of Leicester
Wet woodland	Broadleaved Mixed and Yew Woodland	Wet Woodland	Exact equivalence between local and national habitat

2. Priority BAP Habitats

Lead partners:

UK Priority Habitats: Leicestershire County Council (Environmental Resources Centre)

Local BAP Habitats: Leicestershire and Rutland Wildlife Trust

UK BAP Priority Habitats

Aims:

1. Create and maintain inventories of UK Priority Habitats listed in the Leicester, Leicestershire and Rutland Biodiversity Action Plan
2. Report on changes in condition and extent of UK BAP Priority Habitats through the UK BAP reporting system
3. Report on status of BAP Priority Habitat associated with Local Wildlife Sites as part of statutory responsibilities
4. Promote management, restoration and creation of BAP habitat through the planning system

Habitats of national importance:

Broadleaved woodland
Calcareous grassland
Eutrophic standing water
Field margins
Heath-grassland
Hedgerows
Lowland wood-pasture and parkland
Mesotrophic lakes
Neutral grassland
Reedbed
Wet woodland

Local BAP Habitats

Aims:

Promote management, restoration and creation of local priority habitats

Habitats of local importance:

Fast-flowing streams
Floodplain wetland
Mature trees
Roadside verges
Rocks and built structures
Sphagnum ponds
Springs and flushes
Urban habitat

Habitat descriptions and action plan objectives are set out below

3. Promoting the creation of new wildlife habitat in the wider countryside

Lead partner: Leicestershire and Rutland Wildlife Trust

Habitat Creation Plan

Aim:

To increase the area of land managed in a wildlife friendly way in Leicestershire and Rutland

Guidelines for habitat creation

- Create new habitat corresponding to one of three broad categories throughout Leicestershire and Rutland:
 - Wetland (open water and/or land which has impeded drainage and retains water for part or all of the year or which floods regularly)
 - Woodland (land covered with trees or scrub – either planted or naturally regenerating)
 - Open land (land with no or low intensity management with little or no agricultural inputs. Includes unmown rough grassland, regenerating natural vegetation and sown or planted vegetation)
- Create new habitat on intensively managed land to increase habitat diversity
- Create new habitat on former mineral extraction sites. Minimise intervention to allow these sites to develop new plant communities and species assemblages
- Create new habitat in areas of current high wildlife value (Charnwood Forest, Soar Valley, Leighfield Forest, Rutland Limestone, Rutland Water) to increase landscape connectivity
- In areas where historic habitats remain use new habitat creation to buffer or link sites if possible. The nature of the buffering habitat is immaterial provided it does not compromise the wildlife value of the existing habitat
- Where ecological conditions and resources allow create UK BAP Priority Habitats to buffer and extend existing Priority habitat
- Provide advice on habitat creation and management
- Record details of habitat creation projects and maintain on a GIS database
- Publish examples of good habitat creation schemes in an annual report
- Investigate the use of remote sensing data such as Land Cover Map 2007 as the basis for a baseline habitat survey of Leicestershire and Rutland and for monitoring change at a landscape scale when repeat surveys become available

4. Survey, monitor and promote favourable management of existing good sites through the Local Wildlife Sites system

Lead partners: Local Wildlife Sites Panel, LRWT, Leicestershire County Council (Environmental Resources Centre)

Local Sites Monitoring Plan

Aim

To identify, monitor and promote wildlife friendly management of all existing good wildlife habitat in Leicestershire and Rutland, including Local Wildlife Sites, statutory designated sites and UK BAP Priority Habitats

Actions and outcomes

- No loss of current habitat designated as nationally/internationally important (designations include SSSI, NNR, SPA, Ramsar)
- Ensure all nationally/internationally important sites are in favourable management
- All local authorities to undertake a full Phase I survey of their area in order to fulfil their statutory obligations
- Maintain and extend the current Local Wildlife Sites system to ensure all sites meeting LWS criteria are identified by:
 - The Local Record Centre, the Local Wildlife Sites Panel and LRWT working together to promote, co-ordinate and monitor the LWS system
 - Resurveying all LWS every five/ten years (depending on habitat)
 - Ensuring all LWS are recognised by the planning system and loss through development is avoided wherever possible
 - Ensuring LWS are fully recognised by agri-environment and other grant schemes
 - Adapting the LWS criteria where appropriate to recognise new habitats and species assemblages resulting from changes in land use and climate change
- Promote beneficial management of LWS to maintain existing habitats
- Provide management and grants advice to LWS owners

5. Species Action Plans

The Leicester, Leicestershire and Rutland Biodiversity Action Plan includes sixteen Species Action Plans. In many instances these are selected because they are species representative of specific habitats or because they are flagship species recognisable by the general public.

In addition the habitat action plans in the LLRBAP identify characteristic species associated with each of the habitats. All are included in Space for Wildlife, the latest revision of the LLRBAP, to help promote habitat management and creation.

Species conservation is best addressed through habitat restoration and creation. Species do not live in isolation; they live in habitats and require functioning ecosystems. If the habitat isn't right the species will decline. Habitat degradation and loss are key drivers of species loss.

The whole thrust of Space for Wildlife, the latest revision of the LLRBAP, is to increase the amount of habitat available for wildlife across the wider countryside irrespective of its exact nature. This will benefit not only BAP species but also a wide variety of other wildlife. It is recognised that some species will continue to decline, with habitat specialists being under particular threat.

Species of local importance:

- Barn owl
- Bats
- Black hairstreak butterfly
- Black poplar
- Dingy and grizzled skipper
- Dormouse
- Nightingale
- Otter
- Purple small-reed
- Redstart
- Sand martin
- Violet helleborine
- Water vole
- White-clawed crayfish
- Wood vetch

More information on these species can be found below. Each entry includes details of habitat requirements and current threats.

6. Access and Biodiversity

There is increasing evidence that providing people with access to natural green space has multiple benefits including improved health and well-being. Natural green space includes any land that is not managed formally and ranges from, for example, areas of scrub and wetland to ancient woodland and meadow. A study by Natural England has proposed the following access standards for households in England:

- no more than 300 metres from their nearest area of accessible natural green space of at least 2 hectares in size
- at least one accessible 20 hectare site within 2 kilometres of home
- one accessible 100 hectare site within 5 kilometres of home
- one accessible 500 hectare site within 10 kilometres of home.

To be accessible the areas should have freely available public access in a greater form than a public right of way crossing the land.

Within Leicester, Leicestershire and Rutland natural green space is mainly represented by Local Nature Reserves, Country Parks, Wildlife Trust nature reserves and Woodland Trust sites. The majority of sites managed for nature conservation are open to the public, helping to bring people closer to nature. They also help to improve the general quality of life for people through health benefits associated with increased activity, better air quality and attractive surroundings and in a number of instances also provide education opportunities as “outdoor” classrooms.

However, the resource is patchily distributed across the two counties and access in many areas fails to reach the standards set by Natural England. As a consequence people tend to visit a limited number of sites and the numbers can be detrimental to the nature conservation interest particularly where habitats and species are particularly sensitive to disturbance, as during the bird breeding season.

To address the deficiency in accessible nature green space this plan has the following aims.

- Identify areas where there is a deficit of natural green space
- Identify potential targets for designating new sites through mapping strategic green infrastructure and habitat opportunity mapping
- Promote the designation of new sites and encourage public access particularly where access to natural green space for many people is at a premium so as to reduce the distance they need to travel to access this space
- In those parts of Leicestershire and Rutland which are of low value for wildlife and are unlikely to be targeted for nature reserve acquisition by nature conservation organisations, promote the creation of new Local Nature Reserves and Country Parks to provide accessible open green space

7. Community Participation Plan

Aims

To increase people's participation in wildlife conservation and recording.

To increase understanding of wildlife issues.

To increase the availability and quality of wildlife recording and information.

Guidelines for community participation

- Work with existing recorder groups and natural history societies to increase membership, and to identify and survey sites where our knowledge is lacking.
- Involve recorder groups and natural history societies in larger events such as an annual 'Bioblitz' event.
- Increase the number of Local Nature Reserves (LNR's) declared in Leicestershire and Rutland where appropriate.
- Work to involve more people in taking ownership of their LNR through establishing Friends of Groups where they exist.
- Encourage public to recognise the conservation value of their back gardens through events, websites, public surveys and collation and publication of data.
- Put together an information display to send around Leicester, Leicestershire and Rutland libraries and community centres about Space for Wildlife, what people can do to help and where they can go to get more involved or for more information.
- Include more information about how the public can help and get more involved on the website.
- Provide case studies of good practice for local publicity, rotate these on the website.
- Work with local press to improve the number of wildlife informed articles printed.
- Work with Green Infrastructure working groups to involve planning for wildlife and to promote the multiple benefits of improving access to green space.
- Data exchange agreement to be set up between BAP organisations.

8. Further information on habitats and species

8.1 Space for Wildlife - Priority Habitats

The 19 Habitat Action Plans set out in earlier versions of the Leicester, Leicestershire and Rutland Biodiversity Action Plan have been retained in Space for Wildlife as priorities for conservation and restoration and this document contains a summary of each detailing their reasons for being a local priority, species associated with the habitat and conservation objectives.



Habitats of national importance:	Habitats of local importance:
Broadleaved woodland Calcareous grassland Eutrophic standing water Field margins Heath-grassland Hedgerows Lowland wood-pasture and parkland Mesotrophic lakes Neutral grassland Reedbed Wet woodland	Fast-flowing streams Floodplain wetland Mature trees Roadside verges Rocks and built structures Sphagnum ponds Springs and flushes Urban habitat

Habitats of National Importance

Broadleaved Woodland

Action plan objectives

- No further loss of ecologically important Ancient Semi-natural Woodland (ASNW)
- Restore plantations on ancient woodland sites to native broadleaf woodlands
- Create new native broadleaved woodland outside of the National Forest, avoiding other habitats of high conservation value

Introduction

At just over 4% cover, Leicestershire and Rutland are particularly poorly wooded. The cover of broadleaved woodland is 1.8%, of which just over half is the ecologically important ancient semi-natural woodland (ASNW) which is found on sites that have been continuously wooded since before 1600AD. Between 1930 and 1985 11% of ASNW in Leicestershire and Rutland was totally destroyed and 43% damaged by replanting. More recently, quarrying has destroyed Buddon Wood, one of the most species rich ancient woodlands in the country. Of the remaining ASNW, over 50% is less than 10ha in size, indicating how severely fragmented this resource has become.



Some characteristic species

Broadleaved woodland in Leicestershire and Rutland contains great diversity of different plant communities. Bluebells (*Hyacinthoides non-scripta*) are widespread but thrive best on the lighter soils. On heavy soils Ash (*Fraxinus excelsior*) and Field Maple (*Acer campestre*) are characteristic. On more acid sites Pedunculate Oak (*Quercus robur*), Hazel (*Corylus avellana*) and brambles (*Rubus* spp) are common. Rare species include Small-leaved Lime (*Tilia cordata*), found in Buddon, Owston and Swithland and east Rutland woods, and Sessile Oak (*Quercus petraea*) confined to Charnwood Forest. Other characteristic species include birds such as Nuthatch (*Sitta europaea*) and Greater Spotted Woodpecker (*Dendrocopos major*); badgers (*Meles meles*); and Daubenton's, Whiskered and Noctule bats. Butterflies and moths associated with this habitat are Purple and White-letter Hairstreak, White Admiral, Square-spotted Clay and Concolorous.

Most important factors affecting the habitat

- Maturing conifer plantations on ancient woodland sites (PAWS) shading out native plants and altering soil conditions.

- Intensive agricultural activities on adjacent land causing impoverishment of woodland flora through eutrophication and spray drift, particularly on smaller sites.
- Habitat fragmentation.
- Lack of management causing loss of shade-intolerant species, especially from rides.

Calcareous Grassland

Action plan objectives

- Identify and promote management of all calcareous grassland sites.



Introduction

In Leicestershire and Rutland, calcareous grassland is largely confined to the Jurassic Oolitic limestone in east Rutland and northeast Leicestershire. There are important calcareous grasslands in old quarries, roadside verges, and churchyards. Large numbers of scarce species are associated with this habitat, particularly flowering plants, beetles and other invertebrates.



Some Characteristic Species

Calcareous grassland is particularly noted for the large number of flowering plant species associated with it. Locally Pyramidal Orchid (*Anacamptis pyramidalis*) is declining, while Frog Orchid (*Coeloglossum viride*) is now known from only one site. Other species of conservation importance are Sulphur Clover (*Trifolium ochroleucon*), Chalk Milkwort (*Polygala calcarea*), and the easily overlooked grass, Mat-grass Fescue (*Vulpia unilateralis*). More common species such as Bird's-foot Trefoil (*Lotus corniculatus*) and Creeping Cinquefoil (*Potentilla reptans*) are important nectar sources for moth and butterfly species. The two named are food plants for Dingy (*Erynnis tages*) and Grizzled (*Pyrgus malvae*) Skipper respectively. These two butterflies are declining as a result of loss of habitat due to development or lack of appropriate management. More details can be found the Species Action Plan

for these butterflies. Similar factors affect the Glow-worm (*Lampyris noctiluca*). Other characteristic butterfly and moth species are Brown Argus, Marbled White, Chalk Carpet and Square-spotted Clay.

Most important factors affecting the habitat

- Small, isolated nature of remaining habitat
- Lack of management, especially grazing, leading to invasion by scrub and vigorous grasses
- Inappropriate management of roadside verge sites
- Nutrient enrichment

Eutrophic Standing Water - Field Ponds, Lakes, Canals and Reservoirs

Action plan objectives

- Create new ponds and lakes
- Restore where appropriate existing field ponds
- No further loss of notable aquatic plant communities from canal SSSIs and Wildlife Sites



Introduction

Eutrophic standing water is nutrient rich and is found in field ponds, lakes, canals, gravel pits and reservoirs. In Leicestershire and Rutland reservoirs such as Rutland Water, Eyebrook and Swithland reservoirs have national or international ecological importance. Many of these sites have statutory designations that afford some degree of protection. However similar designations have failed to protect the notable plant and invertebrate communities associated with the counties' canals. Increasing boat traffic and associated 'restoration' work is threatening the long-term survival of many species in canals. Field ponds were once a familiar feature of the Leicestershire and Rutland countryside, having been dug wherever a natural water supply for stock to drink from was not available. Although many are small, collectively they represent a significant ecological resource. With the conversion of much grazing land to arable farming, field ponds frequently no longer served a purpose, and so many were filled in.

Some characteristic species

Reservoirs attract large flocks of wildfowl including, at Rutland Water, internationally significant numbers of Gadwall (*Anas strepera*) and Shoveler (*Anas clypeata*). The Grand Union and Ashby Canals are particularly important for aquatic plants such as the nationally scarce Grass-wrack Pondweed (*Potamogeton compressus*) and the rare Flat-stalked Pondweed (*Potamogeton friesii*). The Grantham Canal is notable as being the best site for Odonata (Dragonflies and Damselflies) in the area. 17 species have been recorded and it is the only local site for the rare Variable Damselfly (*Coenagrion pulchellum*). 41 species notable in Leicestershire and Rutland including Great Crested Newt *Triturus cristatus*, other amphibian species, and many invertebrates are associated with field ponds (Lott 1997).

Most important factors affecting the habitat

- Eutrophication from fertiliser application to surrounding land.

- Increased recreational use, including boating and fishing, with associated dredging and management.
- Ponds: excessive scrub development around margins and silting up.
- Filling in.

Field Margins

Action plan objectives

- Promote creation and management of field margin habitat for wildlife



Introduction

Arable field margins act as a buffer zone between the field boundary and the crop or road, and form important wildlife corridors between species rich areas. In Leicestershire and Rutland field margins are a key habitat for a number of Red Data Book species, including many farmland birds, arable plants and insects. The structural condition of a field margin is extremely important for biodiversity along with the presence of associated features such as hedgerows, ditches, walls or watercourses.

Some characteristic species

Arable weeds are one of the most threatened categories of plant in the UK. Species like the Cornflower (*Centaurea cyanus*) disappeared from Leicestershire and Rutland long ago. Other once common plants, including Corn Marigold (*Chrysanthemum segetum*), Shepherd's Needle (*Scandix pecten-veneris*) and even Common Poppy (*Papaver rhoeas*) are becoming increasingly rare. Seeds from arable weeds, such as Fat Hen (*Chenopodium album*), are an important food source for many species of farmland bird. While species such as Grey Partridge (*Perdix perdix*) Corn Bunting (*Emberiza calandra*) and Skylark (*Alauda arvensis*) benefit from sympathetic management of arable field margins. Characteristic butterfly species include Small Skipper, Gatekeeper and Ringlet.

Most important factors affecting the habitat

- Ploughing/cultivation right up to the base of the field margin.
- Spray drift of fertilisers and pesticides.
- Over-management to keep field margins 'neat and tidy'.

Heath-grassland

Action plan objectives

- No further loss of existing heath-grassland SSSIs and Wildlife Sites
- Restore existing heath-grassland sites by grazing, bracken control, scrub removal
- Where suitable conditions exist create new heath-grassland adjacent to existing sites targeting the Charnwood Forest area

Introduction

Heath-grassland was once widespread in northwest Leicestershire and east Rutland, but following land use changes in the 19th century it has become almost entirely confined to Charnwood. Heath-grassland contains a high proportion of Leicestershire Red Data Book species, which is a reflection of the rarity and importance of this habitat locally.

Some characteristic species

Where bracken has not become dominant, heath-grassland in Leicestershire is characterised by grasses such as Common Bent (*Agrostis capillaris*), Purple Moor-grass (*Molinia caerulea*) and Mat-grass (*Nardus stricta*). Heather (*Calluna vulgaris*), Bilberry (*Vaccinium myrtillus*) and Cross-leaved Heath (*Erica tetralix*) are uncommon. Bare ground on the drier heaths is particularly important for invertebrate species such as the Green Tiger Beetle (*Cicindela campestris*). Where the soil is more poorly drained rushes and sedges are frequent. Here also can be found pools containing Sphagnum moss, another BAP priority habitat, now mainly confined to Charnwood Lodge. Characteristic butterfly species include Small Copper, Brown Argus, Green Hairstreak, Wall and Small Heath.



Most important factors affecting the species

- Lack of management, especially grazing, leading to scrub invasion
- Spread of bracken
- Nutrient enrichment
- Recreation pressure

Hedgerows

Action plan objectives

- Promote the planting of new hedgerows
- Promote the sympathetic management of existing ancient and species-rich hedges



Introduction

Hedgerows are particularly important in Leicestershire and Rutland as the two counties have a low percentage of woodland cover. Hedges act as a substitute habitat and as corridors linking other habitats. Hedgerows are important habitats for many species of bird, bats and insects. Older or more species-rich hedges have greater biodiversity value.



Some characteristic species

The most common hedgerow shrub is Hawthorn (*Crataegus monogyna*), but older hedgerows contain a wide variety of species often characteristic of woodland, including Field Maple (*Acer campestre*), Dogwood (*Cornus sanguineus*) and Buckthorn (*Rhamnus catharticus*). A dense, tall hedge provides nesting sites for a number of bird species, including Blackbird (*Turdus merula*), Dunnock (*Prunella modularis*) and Song Thrush (*Turdus philomelos*). Hedgerow trees such as Ash (*Fraxinus excelsior*) and Oak (*Quercus robur*) provide additional habitat for birds and bats species including Daubenton's, Natterer's and Noctule (all BAP priorities). Old hedges often contain mature trees (covered by a separate BAP habitat plan), many of which have been managed by pollarding. They are a particularly

important habitat for species of fungus and invertebrate, which live on dead wood. Characteristic hedgerow butterfly species include Brimstone, Purple and White-letter Hairstreaks and Holly Blue.

Most important factors affecting the habitat

- Over management, annual flailing
- Agricultural spray drift (herbicides and pesticides) and fertiliser applications
- Close ploughing
- Browsing by stock
- Deliberate herbicide treatment of vegetation in the hedge bottom

Lowland Wood-Pasture & Parkland

Action plan objectives

- Create new wood-pasture adjacent to existing sites
- Promote management of existing wood-pasture and parkland sites by
 - 1) restoring pollarding,
 - 2) initiating a new generation of trees through natural regeneration or planting,
 - 3) grazing



Introduction

Typically wood-pasture contains large open grown trees (often pollards) at various densities in a matrix of grazed grassland. Formerly grazing was maintained by cattle or deer, but in some areas has been replaced by arable cultivation or planted woodland. Bradgate and Donington Parks are the only wood-pasture sites in Leicestershire and Rutland that are still deer parks. The main interest of these sites is associated with their ancient trees. The conservation value of the trees is described in the Mature Trees HAP, the wider countryside companion of this plan. The grassland matrix may also be of conservation value in its own right. These sites can have historic, cultural and landscape importance. Parklands of more recent origin, containing mature trees, are also of conservation value.

Some characteristic species

Wood-pasture and parkland are characterised by their ancient trees. Oak (*Quercus robur*) is probably ubiquitous on these sites, but other species including many non-native species of great age, are common. The key species of this habitat are associated with mature trees, and live on or in hollows, rotting wood and dead branches. As well as being valuable for fungi, this habitat locally, is associated with 5 Red Data Book (RDB) species of beetle, 2 RDB species of spider and two RDB species of lichen. Other key species include the Noctule bat (*Nyctalus noctula*).

Most important factors affecting the habitat

- A lack of younger generations of trees producing an uneven age structure, leading to breaks in continuity of deadwood habitat and loss of specialised dependent species.
- Neglect and loss of expertise of traditional tree management techniques (e.g. pollarding)
- Removal of deadwood through perceptions of tidiness is occurring at sites with high community use.
- Felling of veteran trees due to perceived and actual safety problems.

- Damaged trees and roots from soil compaction and erosion can be caused by excessive trampling by livestock and people and compounded by physiological stress due to drought.
- Isolation and fragmentation of the remaining parkland and wood-pasture sites in the landscape.
- Conversion of pasture to arable land with close ploughing resulting in tree root damage.
- Damage to epiphyte communities from agrochemicals, fertilisers and air pollution.

Mesotrophic Lakes

Action plan objectives

- No further loss of characteristic aquatic and marginal plant species

Introduction

This habitat is rare in the UK and largely confined to the margins of upland areas in the north and west. The lakes are characterised by having a narrow range of nutrients, the important ones being inorganic nitrogen (N) and total phosphorus (P). In Leicestershire three large sites historically fell within this definition of mesotrophic standing water; Cropston Reservoir, Blackbrook Reservoir and Thornton Reservoir. All have been affected by nutrient enrichment and are no longer mesotrophic. These sites are within or adjacent to the Charnwood Forest which is the only 'upland-like' area in Leicestershire. Locally several nationally scarce species are associated with this habitat.

Restoration of mesotrophic lakes in Leicestershire is not a realistic option and conservation efforts need to concentrate on maintaining as many of the remaining populations of locally scarce aquatic and marginal plant species as is possible under the changed environmental circumstances.

Some characteristic species

The characteristic species associated with mesotrophic lakes in Leicestershire are aquatic and marginal plants such as Shoreweed (*Littorella uniflora*), Thread Rush (*Juncus filiformis*), Floating Club-rush (*Eleogiton fluitans*) and Small Water-pepper (*Persicaria minor*). Large areas of open water are also important breeding and over wintering sites for many species of duck, including Shoveler (*Anas clypeata*), Teal (*Anas crecca*) and Gadwall (*Anas strepera*).



Most important factors affecting the habitat

- Nutrient enrichment due to:
 - Fertiliser run off from agricultural land into streams feeding into the lakes.
 - Input of treated sewage into streams feeding the lakes.
 - Pumping of nutrient rich water into Cropston Reservoir from Swithland Reservoir.
- Increased sediment from soil erosion as a result of ploughing and drainage of arable land.
- Insufficient or inappropriate water level management.

Neutral Grassland

Action plan objectives

- No further loss of existing neutral grassland SSSIs and Wildlife Sites
- Encourage positive management of neutral grass Local Wildlife Sites

Introduction

Leicestershire and Rutland were once renowned for their large area of species-rich, 'unimproved' neutral grassland. This grassland is easily damaged by agricultural practices such as ploughing and re-seeding or by extensive fertiliser and herbicide treatments. Little of this habitat now remains. 97% was destroyed between 1930 and 1984 and the area remaining has continued to decline in the subsequent 20 years. Unimproved neutral grassland within Leicestershire and Rutland can be divided into two major types: flood-meadow grasslands and grasslands in drier areas. Flood meadow grasslands are managed traditionally as hay-meadows, while the traditional management of grasslands in drier areas is either as hay-meadow or as pasture.

Some characteristic species

Common Knapweed (*Centaurea nigra*), Cowslip (*Primula veris*), Pepper-saxifrage (*Silaum silaus*), Yellow-rattle (*Rhinanthus minor*), Adder's-tongue Fern (*Ophioglossum vulgatum*) and Green-winged Orchid (*Orchis morio*) were all characteristic of species-rich neutral grasslands in Leicestershire and Rutland. All are declining. Many have shown a continuous loss since the 1930s, which has accelerated in recent years. In the 1933 Flora of Leicestershire and Rutland Green-winged Orchid was described as locally abundant and generally distributed with 79 localities named. By the 1970s this had fallen to 16 sites, of which only 5 remain to the present day. This reflects the steady decline in this species nationally. The abundance of flowering plants in these meadows provides nectar sources for many invertebrates including butterflies such as the Common Blue (*Polyommatus icarus*) and Meadow Brown (*Maniola jurtina*) and the Chimney Sweeper moth (*Odezia atrata*).



Most important factors affecting the habitat

- Agricultural improvement including application of herbicides and fertilizers, ploughing and re-seeding
- Switch from hay making to silage production and conversion to high production grasslands through applications of fertilisers and herbicides.
- Lack of management resulting in changes to rank grassland and eventually scrub.
- Change of hay-meadow grazing to grazing including intensive horse grazing.
- Conversion to arable.
- Loss of sites to built development.

Reedbed

Action plan objectives

- Create additional reedbed by prioritising sites adjoining existing reedbed and wetland habitat

Introduction

Reedbeds are wetlands dominated by, but not necessarily composed purely of, stands of the Common Reed *Phragmites australis*. Historically Leicestershire and Rutland have never had extensive areas of reedbed. The largest remaining areas are associated with man-made habitats, including Groby Pool and the Grantham canal. More recently large reedbeds have been created at Rutland Water and Cossington Meadows nature reserves. A large part of Narborough Bog was formerly reedbed but this has been extensively damaged by the 'improvement' works carried out on the adjacent River Soar that has resulted in it drying out.

Some characteristic species

In the UK four species of birds are highly dependent on reedbeds for their survival: Reed Warbler (*Acrocephalus scirpaceus*), Bearded Tit (*Panurus biarmicus*), Marsh Harrier (*Circus aeruginosus*) and Bittern (*Botaurus stellaris*). Reedbeds also provide roosting and feeding sites for migratory species: Swallow (*Hirundo rustica*); Sand Martin (*Riparia riparia*); Yellowhammer (*Emberiza citrinella*) and Corn Bunting (*Miliaria calandra*) and roost sites for several raptor species in winter such as Hen Harrier (*Circus cyaneus*). Locally, five Red Data Book invertebrates are closely associated with reedbeds including the Twin-spotted Wainscot moth (*Archanara geminipuncta*).



Most important factors affecting the habitat

- The small total area and fragmented distribution of the habitat.
- Lack of or inappropriate management of existing reedbeds leading to drying out.
- Drainage works on surrounding land causing a lowering of the water table.
- Unsympathetic restoration of gravel pits.
- Pollution by toxic chemicals causing loss of fish and amphibian prey for key species and accumulation of poisons in the food chain.

Wet Woodland

Action plan objectives

- Promote the creation of wet woodland in floodplains whilst avoiding other habitats of high conservation value
- No further loss of existing wet woodland SSSIs and Local Wildlife Sites

Introduction

In this context 'wet woodland' is defined as stands of ancient semi-natural woodland where Alder *Alnus glutinosa* is the dominant tree, or semi-natural woodland on floodplains with dominant willow, *Salix*, species, and where the water table is at or near the surface for much of the year. The resource of ancient semi-natural wet woodland is estimated to be 30 ha, much of which lies in Charnwood Forest. On river floodplains all ancient wet woodland was cleared long ago for agriculture. However secondary woodland has formed where willows have colonised features such as flooded gravel pits and ox-bow lakes. Many have developed into species rich sites of high conservation value. Even small areas of just a few trees on swampy ground, can hold populations of rare species.

Some characteristic species

Characteristic tree species include Alder (*Alnus glutinosa*), White Willow (*Salix alba*) and Crack Willow (*Salix fragilis*). Within wet woodlands, especially the ancient ones, can be found species-rich plant communities containing the locally scarce Alder Buckthorn (*Frangula alnus*), Alternate-leaved Golden Saxifrage (*Chrysosplenium alternifolium*) and Smooth-stalked Sedge (*Carex laevigata*). Old willows are important habitat for many rare invertebrates, particularly beetles and crane flies. The nationally scarce Musk Beetle (*Aromia moschata*) is of particular note. Associated butterflies and moths are Brimstone, White Admiral and Concolorous. In winter flocks of Siskin (*Carduelis spinus*) and Redpoll (*Carduelis flammea*) can be found in Alder woodlands.



Most important factors affecting the habitat

Wet woodland is under greatest threat where it is found on floodplains. Factors include:

- River straightening, dredging and other flood defence works that destroy natural processes in flood plains and prevent regeneration of wet woodland.
- Removal of trees from flood plains because of perceived threat to river flows during floods.
- Drainage of wet areas with trees on flood plains.
- Loss of Alder though spread of Phytophthora root disease.
- Development.

Habitats of Local Importance

Fast Flowing Streams

Action plan objectives

- Promote the restoration of degraded stream habitats

Introduction

Fast flowing streams are for the purposes of this plan defined as any stream flowing over a substrate mainly composed of gravel or coarser particles. Fast flowing streams are found throughout Leicestershire and Rutland from the hard rock relatively nutrient poor areas of Charnwood Forest to the nutrient rich lowland reaches in the rest of the counties. The streams are often narrow; some are only a few kilometres in length whilst others comprise the headwaters of main rivers. Streams of importance for their specialist fauna are concentrated in the Charnwood Forest, and include the River Linn, Wood and Grace Dieu Brooks. In Rutland the River Chater and Eye Brook also have significant flora and fauna.

Some characteristic species

Fast flowing streams support a number of specialist plants and animals including 22 key species. Amongst these are White-clawed Crayfish (*Austropotamobius pallipes*), Bullhead (*Cottus gobio*), Brook Lamprey (*Lampetra planeri*) and native Brown Trout (*Salmo trutta*). *Tinodes pallidulus*, a nationally rare Caddis fly, has been recorded from the Wood Brook in Charnwood Forest.



Most important factors affecting the habitat

- Land drainage increasing storm flow and fine sediment load.
- Nutrient-rich run-off from agricultural land leading to eutrophication.
- Channel straightening resulting in removal of important habitat features.
- Diffuse and point source pollution.
- Drought and water abstraction leading to slow flows.

Floodplain Wetland

Action plan objectives

- To create additional floodplain wetland within the Soar, Wreake and Welland valleys
- To maintain all existing floodplain wetland sites

Introduction

River floodplains are important for wildlife. They encompass a range of wetland habitats including old sections of river, cut-off from the main channel and often surrounded by trees, especially willows *Salix spp.*, marshy ground caused by the water table being at or near the surface, flooded gravel pits, wet woodland, drainage ditches along field margins, field ponds, the river channel and reedbeds. The river channel, wet woodland, reedbed and field pond habitats are covered by separate action plans. The largest areas of floodplain wetland habitat in Leicestershire and Rutland are associated with the Soar and Wreake valleys and to a lesser extent are also found along the Welland and other, smaller, rivers and brooks.

Some characteristic species

A wide range of wildlife can be found in floodplain wetlands including Otter (*Lutra lutra*), Water Vole (*Arvicola terrestris*), (both covered by species action plans), and birds such as Snipe (*Galinago galinago*), Redshank (*Tringa totanus*) and Sand Martin (*Riparia riparia*). Wetlands are also an important habitat for a wide range of invertebrate species. In particular the Soar and Wreake valleys contain known sites for a number of nationally rare beetles. The habitat is associated with few locally scarce plants. However, many watercourses are fringed by tall reed-like plants including Common Club-rush (*Schoenoplectus lacustris*), Grey Club-rush (*Schoenoplectus tabernaemontanii*), Bulrush (*Typha latifolia*) and Bur-reed (*Sparganium erectum*).



Most important factors affecting the habitat

- Land drainage schemes.
- Infilling.
- River engineering schemes.
- Siltation as a result of agricultural cultivation.
- Road building and other developments which increase run-off and alter the catchment characteristics.
- Recreational pressures.
- Eutrophication caused by fertiliser application.

Mature Trees

Action plan objectives

- Promote tree pollarding as a management option for mature tree
- Designate mature tree as Wildlife Sites
- Encourage public appreciation of mature trees through participation in surveys such as the Ancient Tree Hunt (<http://www.ancientreehunt.org.uk/>)



Introduction

An important feature of mature trees is that they are either hollow or contain rotting heartwood. Dead and decaying wood is essential for many species particularly fungi and insects. Maturing tree species differ in their characteristics. Birch trees mature relatively quickly in 50 years, whilst oak trees can live for several hundred years. Many ancient trees in hedgerows and along watercourses were once actively managed by pollarding. This is a traditional method of managing trees, akin to coppicing, which effectively prolongs their life and ensures continuity of habitat for many species dependant on dead wood.



Some characteristic species

Mature trees are an important habitat for many species. In Leicestershire and Rutland they provide roosting sites for seven species of bat including Daubenton's Whiskered and Natterer's, all covered by the Bat Species Action Plan. Birds such as the Stock Dove, Green Woodpecker, Redstart and Barn Owl (the latter two both LLRBAP species) use hollow trees as nesting sites. Mature trees are particularly

important for invertebrates, and more than 75 species of beetle of national importance have been recorded living in such trees within our area. Being long-lived mature trees develop a large community of lichen species of which at least 50 are known to be locally rare.

Most important factors affecting the habitat

- Urban development and agricultural practices
- Removal of trees for safety reasons
- Lack of management e.g. pollarding
- Unsympathetic pollarding

Roadside Verges

Action plan objectives

- Designate all existing roadside verges meeting the criteria, as Local Wildlife Sites
- Promote sympathetic management of roadside verge Local Wildlife Sites

Introduction

A roadside verge is defined here as that part of the highway which lies on either side of a road and is confined by a boundary, usually a hedgerow, wall or fence and often incorporates a ditch of variable depth and width. In Leicestershire and Rutland it is calculated that there are about 10,200 km of roadside verge with a minimum area of over 2000 ha. Grassland verges can hold valuable communities of plants and animals. In many areas verges may represent the last remaining examples of unimproved neutral or calcareous grassland, (covered by separate Habitat Action Plans).

Some characteristic species

Plants characteristic of unimproved grassland such as Common Knapweed (*Centaurea nigra*) and Meadow Crane's-bill (*Geranium pratense*) can also be found on roadside verges in Leicestershire and Rutland. Other plants such as the parasitic Knapweed Broomrape (*Orobanche elatior*) and Sulphur Clover (*Trifolium ochroleucon*) are now almost totally confined to verges in the two counties. Another notable species is the Glow-worm (*Lampyrus noctiluca*).



Most important factors affecting the habitat

- Eutrophication due to fertiliser applications to adjacent agricultural land and nitrous oxides from vehicle exhaust fumes
- Inappropriate mowing regimes.
- Road widening and maintenance work.
- Loss of native species as a result of inappropriate planting and the spread and growth of scrub vegetation

Rocks & Built Structures

Action plan objectives

- Identify and advise on management of rocks and built structures meeting Local Wildlife Site criteria



Introduction

Rock and built structure habitats in Leicestershire and Rutland are of two types; natural outcrops, scree slopes, shingle and stony ground, and man-made habitats including quarries, walls, pavements, roofs, culverts, grave stones, wood and ironwork, ballast and bridges. All of these habitats can be of value to fauna and flora, especially lichens and bryophytes.



Some characteristic species

Over 300 species of lichen have been recorded from rock outcrops in the Counties. About 70-80 lichen species can be expected from a local churchyard. Ferns such as Common Polypody (*Polypodium vulgare*) and the locally scarce Rustyback (*Ceterach officinarum*) are also dependent on rocks and built structures, as are cliff-dwelling birds such as Peregrine *Falco peregrinus* and House Martin *Delichon urbica*. The Wall is a typical butterfly species associated with this habitat.

Most important factors affecting the habitat

- Air pollution.

- Trampling of plant communities by people and animals.
- Reduction of grazing leading to woodland development with consequent over-shading of cryptogamic flora.
- Indiscriminate tree planting also leading to over-shading of rock habitats.
- Spraying of chemicals and agricultural dusts.
- Damage by fire.
- Use of quarries for landfill.
- Cleaning of walls and grave stones.
- Unsympathetic rebuilding of drystone walls.

Sphagnum Ponds

Action plan objectives

- No further loss of existing sphagnum ponds

Introduction

Sphagnum ponds are now a rare habitat in Leicestershire and Rutland, though they were once probably widespread in Charnwood Forest before the Enclosures. The present known distribution of *Sphagnum* ponds in the counties is very limited. These ponds are usually small, covering only a few square metres. They contain varying quantities of acid water, and some are dry or only damp for part of the year. While most are open, trees heavily shade others.

Some characteristic species

Sphagnum ponds are an important habitat for many species of mosses, especially *Sphagnum spp.*, as well as numerous invertebrates, including several species of Leicestershire Red Data Book beetles. A number of associated plant species are also locally scarce, including Common Cottongrass (*Eriophorum angustifolium*), Bog Pondweed (*Potamogeton polygonifolius*) and Floating Waterplantain (*Luronium natans*).



Most important factors affecting the habitat

- Drought and lowered water tables resulting from land drainage
- Colonisation by trees, leading to drying out and shading

Springs & Flushes

Action plan objectives

- Identify spring and flush Local Wildlife Sites and provide management advice

Introduction

Springs occur where water wells up to the surface from underground aquifers, while flushes are areas of sloping ground with impeded drainage that are wet as a result of surface run-off. Most flushes of conservation interest are associated with springs that give them a long history of hydrological continuity. They usually have a mineral substrate and so are a type of 'marsh' habitat, but on gently sloping ground, such as at Botcheston Bog, local peaty deposits can build up and give rise to a 'bog' habitat.

Some characteristic species

Typical plants of springs and flushes include Marsh-marigold *Caltha palustris*, Tussock Sedge *Carex paniculata*, Great Horsetail *Equisetum telmatei*, Soft Rush *Juncus effusus* and Marsh Valerian *Valeriana dioica*. The moss *Calliergon cuspidatum* is characteristic of many calcareous flushes in the east midlands. The subterranean parts of springs support the water beetles *Hydroporus obsoletus* and *Agabus biguttatus* and probably other specialist invertebrates, although these have not been investigated in Leicestershire and Rutland.

Most important factors affecting the habitat

Drying out due to:

- Drainage for agricultural purposes or development.
- Lack of appropriate management leading to scrub invasion and natural succession to woodland.
- Groundwater abstraction leading to lowered water table
- Drought

Other factors:

- Inappropriate pond excavation leading to loss of spring and flush fauna and flora.
- Eutrophication from fertiliser application to surrounding land.
- Overgrazing leading to excessive poaching and removal of cover.

Urban Habitat

Action plan objectives

- Improve the value of wildlife corridors and the biodiversity network throughout Leicester
- Improve access to existing information on Leicester's biodiversity
- Encourage the monitoring and recording of wildlife within Leicester
- Draw attention to the need to make greenspace and natural areas accessible to the citizens of Leicester
- Develop Leicester existing network of nature reserves

Introduction

Leicester is the largest city in the East Midlands, the traditional county town of Leicestershire, and, since 1997, has been a self-governing unitary authority. It is the 13th largest city in the UK, covering 75 km² and is located at the centre of the county. The wider conurbation of Leicester, which includes the satellite towns of Oadby, Wigston, Braunstone Town, Birstall, Glenfield, Blaby, Thurmaston, Syston and Leicester Forest East, is home to 65% of Leicestershire's population and is very culturally and economically diverse. The city is bisected north to south by the River Soar and the Grand Union canal: these and their tributary streams serve as important wildlife corridors, along with the two railway lines. Although the majority of the land area in Leicester (~54%) is still classified as 'green space' planned major developments, especially to the north are set to reduce this considerably, and much of what will remain is of limited biodiversity value. Like most UK cities private gardens are the single largest land use, covering almost 2000 ha or 27% of the city area, but compared to other cities of its size Leicester has relatively little brownfield ('urban commons') sites having lost most to completed development at the city centre.

Some characteristic species

The river and canal are the major wildlife habitats in the city. Other important habitats include a number of small but mature broad leaved woodlands and spinneys, significant areas of grassland such as the neutral grassland in Goss Meadows and Kirby Frith Local Nature Reserves, the grassland around Aylestone, Birstall and the Anstey green wedge, and five ancient hedges, all but one in the north-west. There are seven LNRs in the city, covering 2% of the land area, 33 sites of importance for wildlife conservation (covering 7%) and 98 biodiversity enhancement sites (~10%). Other large areas significant for maintaining urban biodiversity are parks (13 more than 10 ha in size and covering 5% of the land area) and allotments (44 sites covering 112 ha covering 1.5%). There are only a few records, in some cases now very dated, of rare and BAP listed species in Leicester (great crested newts in the Western Golf Course, white-clawed crayfish in Anstey Brook and water voles in the River Soar. Most are in need of reassessment. Otherwise the species found in Leicester are those which would be expected in association with the various urban habitats.

Most important factors affecting the habitat

- Public generally unaware of Leicester's biodiversity, its loss and their own role both in this loss and in conservation
- Rapid development for housing and commerce
- Management of green spaces (excluding nature reserves) is largely unsympathetic to biodiversity conservation
- Anti-social behaviour associated with urban green space

8.2 Space for Wildlife – Priority Species

The 16 Species Action Plans set out in the earlier versions of the Leicester, Leicestershire and Rutland Biodiversity Action Plan have been retained in Space for Wildlife to help promote habitat management and creation.

Barn Owl

Action plan objectives

- Increase the number of breeding barn owls in Leicestershire and Rutland
- Encourage the provision of artificial nesting sites

Introduction

The Barn Owl *Tyto alba* is a good indicator of a healthy farmland environment. Throughout the United Kingdom in the 19th Century it was relatively common in lowland agricultural habitats. However since the 1940s it has been in serious decline. By 1997 there were fewer than 10 pairs in Leicestershire and Rutland. Since that time numbers have increased.

Key habitats

Barn Owls prefer to hunt and feed over unimproved rough grassland. Action to maintain and enhance this habitat is outlined in the neutral grassland, roadside verge and field margin action plans. Roosting and nesting sites are found in hollow trees and in old farm buildings. Many of these sites have been lost in recent years. The mature trees, lowland wood-pasture and parkland, and rocks and built structure habitat plans cover actions to preserve and increase the extent of these habitats and as a consequence should also benefit the Barn Owl.

Most important factors affecting species

Positive factors

- Climate change – mild winters
- Barn Owl box schemes

Negative factors

- Loss of feeding habitat due to agricultural change
- Loss of nest and roost sites
- Road kill, particularly of young birds, whilst hunting along roadside verges
- Increased urbanisation

Bats

Action plan objectives

- Maintain the known distribution of all bat species
- Monitor known roosts using National Bat Monitoring Programme protocols

Introduction

Although several bat species are still considered to be common, available evidence suggests an overall decline in populations (Harris et al. 1995). The Pipistrelles, for instance, are thought to have declined by an estimated 70% between 1978 and 1993 (National Bat Colony Survey). Twelve of the 16 UK species have been recorded in the Counties, with a thirteenth (Serotine) suspected. Following a number of academic studies, the habitat needs of most species are well understood.

Status

Common: Soprano Pipistrelle, Common Pipistrelle, Daubenton's, Brown Long-eared

Uncommon: Brandt's, Whiskered, Natterer's, Noctule.

Rare: Leisler's, Barbastelle, Serotine

Vagrant: Greater Horseshoe, Grey Long-eared.

Key habitats

British bats are insectivorous, occupying many habitat types. With their complex life cycle, they need warm summer breeding roosts and cold, secure hibernation sites, both usually found in built structures. However at least six local species also rely on trees for roosts throughout the year. All species will benefit from the successful implementation of the Mature trees and Broad-leaved Woodland habitat action plans. Other habitat plans that will benefit bats included Hedgerows and Lowland Wood-pasture and Parkland.



Most important factors affecting species

- Intensification of agriculture and inappropriate riparian management leading to a decline in the amount of insect prey for all species.

- Widespread misunderstanding of the legislation protecting bats, leading to loss or damage of many roosts when consultation procedures have been ignored.
- Changes in agricultural practices, and to a lesser extent urbanisation, have reduced areas of insect-rich habitat and the connective flyways, which act as feeding and commuting routes between these habitats.
- Loss of winter roosting sites, which need to be cold, humid and undisturbed.
- Loss, destruction and disturbance of other roosts, particularly maternity roosts, through the use of toxic timber treatment chemicals, intolerance by roosts owners, building practices, and tree felling.
- Climate change.

Black Hairstreak Butterfly

Action plan objectives

- Maintain the only known colony at Luffenham Heath

Introduction

The Black Hairstreak butterfly *Styrmonidia pruni* butterfly is included on the Long List of Globally Threatened/Declining Species. It has a very restricted distribution in Britain, being confined to an area of central England from Oxfordshire north to Rutland. The borders of woods, and rides and clearings within woods, where the larval food plant Blackthorn *Prunus spinosa* is present, are the habitat of this shy and elusive butterfly. The adult keeps mainly to the top of oaks *Quercus spp.*, coming down to feed on honeydew and the nectar of flowers such as bramble *Rubus spp.* and Privet *Ligustrum vulgare*. In Leicestershire and Rutland the only certain location for Black Hairstreak is on and around Luffenham Heath Golf Course, where it is associated with the large areas of scrub woodland containing stands of Blackthorn.

Key Habitats

Black Hairstreak depends upon Blackthorn scrub managed by coppicing on a long rotation. Negative views of scrub, particularly on agricultural land has resulted in a reduction in the amount of this habitat across much of the landscape. Where Blackthorn scrub still exists, it is often over mature due to lack of management, again resulting in loss of habitat for the Black Hairstreak.

Most important factors affecting species

- Lack of scrub management leading to dying out of Blackthorn and development of mature woodland.
- Deliberate destruction of scrub habitat.
- Habitat fragmentation preventing colonisation of new sites.

Black Poplar

Action plan objectives

- No further loss of existing Black Poplars
- Increase the population of Black Poplars by propagation of cuttings taken from local stock

Introduction

The Black Poplar includes many varieties, sub-species and cultivars of the species *Populus nigra* is found throughout most of central Europe, into Asia, where trees are widely planted. The native Black Poplar in Britain is the sub-species *betulifolia*, which is thought to occur naturally in the south and east of England, and parts of Wales. The tree was a distinctive feature of lowland river valleys but for a variety of reasons it is now scarce and the remaining populations are scattered. As a result the Black Poplar is one of the most endangered native trees in Britain. The species has separate male and female trees. The female is now very rare, having been selectively removed because of the large quantities of fluffy seeds produced in spring. Despite confusion with hybrids the native Black Poplar has probably always been rare in Leicestershire and Rutland, at least since botanical recording started in the early eighteenth century. Only a single specimen, at Barlestone, was known until recently, but there have been a further 13 trees reported from 10 sites, perhaps as a result of increased interest in this tree. All of the recent records are from west or northwest Leicestershire. The gender of very few of the trees has been determined, but there is at least one female, at Quorn.

Key habitats

The native Black Poplar is predominately a tree of open ground, not woodland, and will not tolerate side shade. A tree of river floodplains it is frequently associated with riverside meadows. This species should benefit from management covered by the Floodplain Wetland habitat action plan.

Most important factors affecting species

- The scattered nature of the population, making reproduction by natural means very difficult.
- Hybridisation with non-native poplars resulting in seed of doubtful provenance.
- The likelihood that the rarity of the native tree has resulted in little genetic variation within the population.
- Loss of appropriate habitat for germination as a result of drainage, river engineering schemes and agricultural improvement.
- Loss of, or damage to, remaining trees through agricultural operations including hedgerow removal, felling of hedgerow trees and close ploughing damaging the roots.
- Indiscriminate planting of black poplars at inappropriate sites, using inappropriate stock and with little or no documentation

Dingy Skipper and Grizzled Skipper

Action plan objectives

- Safeguard all known colonies and have their sites in favorable management.



Introduction

Both species have undergone losses of around 50% across the UK over the past 30 years although there are still some strong colonies in Rutland. Recent surveys have shown that losses in Leicestershire appear to be greater than the national average, especially for the Dingy Skipper *Erynnis tages*. The Grizzled Skipper *Pyrgus malvae* is approaching the northern edge of its range in Leicestershire. Both are candidate species for the 2005 revision of the UK BAP. These are our earliest butterflies to emerge in spring, and are on the wing from late April until mid June. They live in small, self-contained colonies. However, for long term survival inter-connections between colonies are necessary, so that if one dies out it can be re-established from another nearby. Both butterflies can be difficult to spot because of their small size (wingspan 27-29 mm) and rapid flight close to ground level. In poor weather they remain stationary on dead flower heads.



Key habitats

Although the caterpillars of the two species need different foodplants, (principally Common Bird's-foot Trefoil *Lotus corniculatus* for the Dingy and Wild Strawberry *Fragaria vesca* or Creeping Cinquefoil *Potentilla reptans* for the Grizzled Skipper), colonies are often in similar habitats. Historically these have been sheltered chalk and limestone grasslands and woodland rides and clearings with relatively sparse and short vegetation. Nowadays in both counties colonies are found almost entirely in brownfield habitats, especially quarries and disused railway lines.

Most important factors affecting species

- Inappropriate (often misguided) development of brownfield sites for amenity use - cycleways, tree planting, grassed areas, soil enrichment.
- Site destruction through development for industry or housing.
- Habitat neglect, excessive scrub re-generation, dumping or other abuse.

Dormouse

Action plan objectives

- Maintain the existing Dormouse population in Pickworth Great Wood.

Introduction

The Dormouse *Muscardinus avellanarius* is a nocturnal animal, which lives among the branches of trees and shrubs, rarely coming to the ground, except to hibernate. It requires a mixed, species-rich habitat to supply a sequence of foods throughout its active seasons. In winter, Dormice hibernate on the ground in woven nests, which are sometimes in coppice stools, under brushwood or in tree roots. The Dormouse has a mainly southern distribution, being absent from Scotland, Northern Ireland and most of Wales and northern England. In the past 100 years it has become extinct in half the counties it formerly occupied. Even in good habitats, densities are less than 10 adults per hectare. Leicestershire and Rutland are sparsely wooded, and it is likely the species was always relatively rare. The most recent records are from Pickworth Great Wood, in eastern Rutland, where 40 boxes were put up in 1995.

Key habitats

Dormice are found in woodland. They have most often been associated with hazel coppice but probably are better thought of as a woodland edge species. They prefer areas with a high diversity of trees and shrubs, in which the shrub layer is dense and unshaded but which has a scattering of mature canopy trees. Shrubs that produce berries and nuts provide good sources of food. Many woods are surrounded by a hostile agricultural environment leaving isolated populations of Dormice vulnerable to extinction. Linking up woods, for instance through the planting of hedgerows, as promoted by the hedgerow action plan can help to reduce such isolation. Management of woods for Dormice is covered by the Broadleaved Woodland habitat action plan.

Most important factors affecting species

- Lack of traditional woodland management, notably Hazel *Corylus avellana* coppicing.
- Fragmentation of woodland habitat, and removal of hedges linking them, leaving isolated, non-viable populations.

Nightingale

Action plan objectives

- Bring all known Nightingale breeding sites in Leicestershire and Rutland into favourable management

Introduction

The Nightingale *Luscinia megarhynchos* is included on the U.K. Long List of Globally Threatened/Declining Species. It is a summer migrant to Britain, with a south-east distribution. It tends to occur in loose colonies and prefers coppice woodland, but also occurs in hedgerows, scrub, young conifer plantations and mature deciduous woodland. The species' current and historical status in Leicestershire and Rutland has been described by Jeeves (*Leicestershire Red Data Book: Birds*, LRTNC, 1996). From being more widespread, the Nightingale had become restricted to eastern Rutland by the 1990s, with only 11 singing males in 1994 spread between Barnsdale and Hambleton Woods, Luffenham Heath and Coppice Leys (Barrowden). The absence from some woodland sites but not others is difficult to explain.

Key habitats

Nightingales prefer dense scrub for both feeding and nesting. Traditionally they were associated with hazel coppice although with the decline of coppicing Nightingales are now more likely to be found in blackthorn scrub and tall, thick hedgerows. After initiating scrub management for Nightingales vegetation takes about seven years to become sufficiently dense for it to be suitable for breeding birds. Relevant action plans, which are of relevance to the Nightingale, are those for Broadleaved Woodland and Hedgerows

Most important factors affecting species

- Losses associated with wintering grounds.
- The decline in traditional coppice woodland management.
- Planting of ancient woodlands with conifers.
- Climatic change, which may account for the retreat eastwards.
- The increase in deer populations, especially in eastern Rutland, leading to damage to woodlands and reluctance of owners to re-introduce coppice regimes.

Otter

Action plan objectives

- To restore breeding Otters to all catchments (Avon, Soar, Tame, Welland) by natural recolonisation.

Introduction

Formerly widespread, the otter *Lutra lutra* has declined rapidly since the 1950s. Its range contracted until it was effectively lost from central and south-eastern England by the 1980s. Significant populations remained in Wales, south-west England, Scotland and Northern Ireland. The decline now appears to have halted and otters seem to be slowly recolonising former habitats. Up to the late 1950s the otter was still relatively numerous in Leicestershire, but as in other English counties, the population crashed after the 1950s. Throughout the 1980s and early 1990s there have been occasional records of otters from the Welland, Avon and Trent catchments. In 1994, The Otter Trust released seven captive-bred otters, on the Rivers Gwash and Welland in Rutland.

Key habitats

Otters have large ranges, which can be between 40-70km, where quantities of prey are limited. They exploit a wide range of aquatic habitats from small ditches to large rivers, as well as ponds, lakes and reservoirs. The key factor determining the use of any body of water by otters is the quantity of fish present. Other factors are water quality and the presence of suitable places of refuge. Bankside trees, woody debris, brambles and scrub provide the latter. Action at the river catchment scale is necessary to ensure the return of otters to the area. However site based management as promoted by the Floodplain Wetland, Mesotrophic Lakes, Eutrophic Standing Water and Wet Woodland action plans can help to improve habitat quality for otters along individual watercourses.

Most important factors affecting species

- Use of organochlorines and, more recently, PCBs.
- Insufficient prey associated with poor water quality and unsympathetic riparian management.
- Impoverished bankside habitat features
- Road deaths.
- Disturbance, especially through increased recreation on rivers, canals and reservoirs.
- Mink traps.

Purple Small-Reed

Action plan objectives

- No loss of known populations of Purple Small-reed in Leicestershire and Rutland

Introduction

Purple Small-reed *Calamagrostis canescens* is a tall, attractive grass. It occurs in fens, marshes and open wet woods in scattered localities in England, especially the south-east, and Scotland. In Leicestershire and Rutland Purple Small-reed seems to prefer open woods on wet soils. Confusion with the very similar *Calamagrostis epigeijos* means that some old records of *C. canescens* are questionable. Nevertheless there are only seven post 1970 site records. Owston, Stretton and Cloud Woods are the only sites where colonies are still known for certain to occur. At these sites the plant is restricted to the margins of wet woodland rides.

Key habitats

In Leicestershire and Rutland Purple Small-reed is restricted to woodland habitat. This is covered by the Broadleaved and Wet woodland action plans. Under these plans actions covering conifer removal, ride and coppice management will all benefit this plant.

Most important factors affecting species

- Cessation of traditional woodland management (coppicing) leading to loss of open areas through development of a closed canopy.
- Planting of woodlands with conifers.
- Neglect of woodland ride systems.

Redstart

Action plan objectives

- Return of breeding Redstarts to Leicestershire and Rutland

Introduction

The Redstart *Phoenicurus phoenicurus* is a summer visitor to most of Britain, but is absent from Ireland. In Eastern England it is localised in occurrence. It feeds mainly on insects and nests in holes in trees and other places, in open woodland or parkland. In Leicestershire and Rutland it was once fairly common and widespread, but in recent years there have been no records of breeding in the Counties. Former sites, where two or more pairs bred regularly, are Burley Wood, the upper Chater valley, and possibly the Eye Brook valley.



Key habitats

The Redstart requires open woodland with mature trees for both nesting and feeding. Many local woodlands were clear felled within the past 60 years and now contain few mature trees with suitable nest holes. Lack of management such as coppicing has resulted in the vegetation becoming increasingly dense and shaded with the resultant loss of feeding habitat. In the wider countryside hedgerow and streamside trees have been removed, often as a result of agricultural intensification. In the long-term favourable management of woodland, hedgerows and mature trees should benefit Redstart. Management of Redstart habitats is covered by the Mature trees, Hedgerows, Broadleaved Woodland and Lowland wood-pasture and parkland action plans.

Most important factors affecting species

- Felling and re-planting of woodland habitat.
- Woodland neglect and lack of management leading to loss of open areas and development of thick understorey.
- Loss of hedgerow and stream-side trees.
- Fragmentation of suitable breeding sites.

Sand Martin

Action plan objectives

- Increase the number of Sand Martin colonies

Introduction

The Sand Martin *Riparia riparia* is a summer visitor to Britain and Ireland. It is still relatively common throughout Eastern England. It feeds on insects and nests in excavated tunnels, in riverbanks and man-made cliffs. In spring and autumn, Sand Martins gather with other hirundines in large flocks over large bodies of water and roost in suitable vegetation such as reedbeds. The species is included in the long list of Globally Threatened/Declining species. In Europe the Sand Martin has been identified as a species of European Concern (Category 3) on account of significant declines in populations. Drought conditions in the wintering grounds of the Sahel in the 1970's and 1980's saw large reductions in colony sizes within the Counties. Seven colonies have been recorded in recent years including at artificial Sand Martin walls at Watermead Country Park and Rutland Water nature reserve.

Key habitats

Natural nest sites for Sand Martins are holes excavated in banks and cliffs, particularly along riverbanks. But in Leicestershire and Rutland they are more often associated with man-made excavations such as gravel and sand pits where the faces and spoil heaps provide suitable nesting sites. Artificial Sand Martin banks have also been a success locally, even on sites such as Rutland Water, with no previous record of breeding. Reedbeds provide roosting habitat for Sand Martins and are covered in the Reedbed habitat action plan. Sand Martins feed on invertebrates associated with wetlands and areas of open water, some of which are covered by the Floodplain Wetland, Mesotrophic Lakes and Eutrophic Standing Water plans.

Most important factors affecting species

- Habitat changes in wintering areas
- Loss of suitable nesting banks
- Flood defence and straightening of suitable rivers in the past resulting in the loss of suitable nesting area
- Disturbance to colonies
- Loss of roost sites due to drainage and scrub encroachment
- Loss of feeding sites such as wet meadows, river margins, field ponds and other wetland habitats.

Violet Helleborine

Action plan objectives

- No loss of Violet Helleborine colonies from any known site

Introduction

The Violet Helleborine *Epipactis purpurata* is an uncommon woodland orchid with a southeastern distribution in Britain and Ireland. It is found especially in beech woods on lime-rich soils, in heavy shade. In Leicestershire and Rutland this plant is at the northern limit of its distribution in the UK and is restricted to ancient woodlands on heavy basic soils. Since 1970 it has only been recorded from eight sites, of which only Great Merrible and Sheet Hedges Woods have populations of more than one or two individuals. The total number of individual plants in the counties is likely to be less than 100.

Key habitats

Ancient woodland with mature stands and heavy shade. Often under Oak *Quercus robur* and Beech *Fagus sylvatica* (where planted on Ancient woodland sites). Although covered by the broadleaved woodland plan many of the aims of that plan are likely to be detrimental to the survival of Violet Helleborine. It is therefore important that management of woodland sites where Violet Helleborine is found, takes into account this species requirement for shade. Activities such as coppicing and felling should be directed to areas well away from colonies of this plant.

Most important factors affecting the species

- Felling and planting of ancient woodlands.
- Restoration of coppicing to ancient woodlands without consideration of the needs of the Violet Helleborine (minimum intervention and long rotation coppicing).

Water Vole

Action plan objectives

- Maintain the current distribution in order to arrest the decline of the species in Leicestershire and Rutland.

Introduction

The Water Vole *Arvicola terrestris* is found throughout Britain but is confined mainly to lowland areas near water. A national survey in 1989-90, by the Vincent Wildlife Trust, failed to find signs of voles in 67% of sites where they were previously recorded. Once common and widespread in Leicestershire and Rutland until at least the 1970s, this species has suffered a significant decline in number and distribution. In 2002/2003 a survey of Water Voles found only six significant colonies in the two counties. The isolated nature of these colonies means that they are susceptible to extinction as a result of predation or habitat destruction, with little possibility of recolonisation from other populations.

Key habitats

Water Voles favour slow-moving water and canals. Sites should not be subject to large fluctuations in water level, or dry out in summer. Tall marginal and emergent vegetation provide feeding sites. Low scrub vegetation can provide cover but sites shaded by taller shrubs and trees are avoided. Water Voles also require steep, vegetated earth or clay banks in which to make their burrows.



Most important factors affecting species

- Riverside work and flood alleviation schemes.
- Intensive land use, including both arable farming and pasture with high stocking rates, adjacent to water courses
- Predation by American Mink.
- Pollution.
- Fragmentation of the population.

White-Clawed Crayfish

Action plan objectives

- Maintain the present distribution of White-clawed Crayfish

Introduction

White-clawed Crayfish *Austropotamobius pallipes* is the only species of freshwater crayfish which is native to the UK. It has a wide distribution in the British Isles across lowland England and Wales and in central Ireland, mainly in areas with relatively hard, alkaline water. It occupies a range of habitats, including streams, rivers, lakes, reservoirs and water-filled quarries, with a preference for streams and rivers without too much sediment and with adequate shelter. In Leicestershire, in the Trent catchment, crayfish are found in the headwaters of the Soar and in several of its tributaries, including the Wreake (River Eye SSSI), Twyford Brook, Rothley Brook and particularly the Charnwood streams. They are also present in the (Coalville) Sence and the Sence Brook. There are stillwater populations at Nanpantan and Blackbrook Reservoirs, and in flooded quarries at Stoney Cove and Markfield. In the Environment Agency Anglian Region, there are crayfish populations in the Welland, Chater and Gwash.



Key habitats

The White-clawed Crayfish will benefit from implementation of the Fast-flowing Streams and Eutrophic Standing Water Habitat Action Plans which cover streams, rivers, lakes and reservoirs favoured by this species.

Most important factors affecting species

- Crayfish plague, a disease caused by the fungus *Aphanomyces astaci* which is carried by some North American crayfish including the Signal Crayfish *Pacifastacus leniusculus*.
- Direct competition for food and habitat from non-native crayfish; three non-native crayfish species are now breeding in the wild, and two of these occur in Leicestershire and Rutland.
- Habitat modification and management of waterbodies.
- Pollution, particularly pesticides and sewage.

Wood Vetch

Action plan objectives

- No further loss of Wood Vetch from known sites

Introduction

The Wood Vetch *Vicia sylvatica* is a widespread but localised species in Britain and Ireland, occurring in open woods and wood borders, scree, scrub, maritime cliffs and shingle. It is rare and declining in the East Midlands. For example, a severe decline has been noted in Lincolnshire due to the planting of conifers in deciduous woodlands, and the plant is now confined to just three sites in that county. Recorded from 11 sites in Leicestershire and Rutland, this plant has been seen recently at Hallaton Wood, in newly felled and planted woodland, and in scrub at Clipsham Old Quarry. It could still occur at Loddington Reddish, Tugby Bushes and Tugby Wood, from where it was last recorded in the 1970s.

Key habitats

Wood Vetch appears to respond to light in woodland and scrub, and shows a strong association with ancient woodland sites (the Clipsham population may originally have colonised from the adjacent Pickworth Great Wood). It will benefit from a number of the actions proposed in the Broadleaved woodland habitat plan.

Most important factors affecting species

- Cessation of traditional coppice woodland management, leading to heavy shading of the herb layer.
- Reduced ride management, also leading to shading.
- Planting of trees producing heavy shade, as has happened at Hallaton Wood.
- Conflict of management objectives resulting in excessive scrub removal at Clipsham Quarry.

9. Important areas for wildlife in Leicestershire and Rutland

Five areas of Leicestershire and Rutland are recognised as having high value for wildlife because of the quality of existing habitats, the concentration of important sites and the opportunities for habitat creation found within them. These areas are:

- Charnwood Forest and the adjoining National Forest
- Leighfield Forest
- (Lincolnshire and) Rutland Limestone
- Rutland Water
- Soar and Wreake Floodplain

These areas form part of the Wildlife Trusts Living Landscapes initiative (<http://www.wildlifetrusts.org/index.php?section=environment:livinglandscapes>)

Further details and a map are given below:

Leicestershire and Rutland Wildlife Trust Living Landscape Schemes

A Living Landscape Scheme, as defined by The Wildlife Trusts, is an ecologically functioning landscape, such as a river catchment, that can provide:

- Adaptation to climate change
- Resilience and connectivity for wildlife
- Access, enjoyment and inspiration for people
- A low carbon contribution to the economy

Living Landscapes are what is really needed in nature conservation, rather than a series of isolated, protected sites, including nature reserves, which inevitably lose their special wildlife over time, through factors such as changes in the climate or activities on adjacent land.

To achieve these large scale objectives will take much time, money and crucially requires the support of landowners since nearly all of the land in Leicestershire and Rutland is privately owned.

A map of Leicestershire and Rutland Living Landscapes is shown below. It should be noted that boundaries are indicative.

A summary of each area, an indication of the habitats found within them and current conservation activity is given in the following table:

Charnwood Forest

Located in North West Leicestershire, covering about 17,000 ha, Charnwood Forest consists of a patchwork of woodland, farmland, country parks, nature reserves, quarries and villages. The amount of good quality habitat available to wildlife has diminished significantly over the last 60 years.

Leicestershire and Rutland Wildlife Trust is working with the Friends of Charnwood Forest, CPRE, The National Forest Company, Local Authorities, Natural England and others, to restore a mixture of woodland, wood-pasture, heath-grassland and meadow habitats. The area is internationally important for its geological features.

The Wildlife Trust owns several nature reserves in the area and it is seeking to link these through habitat creation and restoration work. The largest of these reserves are Charnwood Lodge, Ulverscroft and Charley Woods.

Scheme start

2009

Scheme status

Active

Progress to date

Detailed report produced and distributed. Qualified financial support of Aggregate Industries secured for project in west of Charnwood Forest.

Future prospects

The Trust has struggled to buy land in Charnwood Forest in recent years because of high prices. Forging relationships with landowners, especially those that are not primarily farmers, seems the best way forward.

The National Forest

The National Forest was launched in the early 1990s and the Trust has been a partner in it from the start.

Scheme start

1992

Scheme status

Active

Progress to date

The Trust has bought three new nature reserves with NF funding.

Future prospects

Excellent, provided the government continues to support TNF.

Soar and Wreake Floodplain

The floodplain of the Soar and Wreake rivers, in central Leicestershire, covers about 6,000 ha, with land uses including pasture, some arable, gravel pits, urban, roads, country park and nature reserves. Important wildlife habitats - as well as the rivers themselves, which are home to otters and rare water beetles - include wetlands, supporting many wintering and migrating birds, water voles and dragonflies, wet woodland and hay meadows.

The Wildlife Trust owns nature reserves in the area, including Cossington Meadows, Loughborough Meadows and Narborough Bog. The scheme aims to provide substantial areas of new nature reserves and other land managed with nature conservation a priority.

Charnwood Borough Council, the Environment Agency, Natural England, Leicestershire County Council, Leicester City Council, Leicestershire and Rutland Wildlife Trust and local community groups are amongst those who have contributed to date.

Scheme start

2001

Scheme status

Active

Progress to date

New nature reserves covering 140ha (ca 340 acres) have already been purchased at Cossington, Mountsorrel, Loughborough and Wanlip; a habitat survey of much of the floodplain carried out; advice given to many landowners; work on private land supported through the Environmental Stewardship Scheme, Environmental Action Fund, Forward with Leicestershire Aggregates and Biffa landfill-tax funding; practical events organised for volunteers and guided walks.

Future prospects

These are good. The valley does not contain high quality land from an agricultural point of view, land prices are reasonable, the Trust has strong support from some local authorities, co-operation from landowners is encouraging, and funding is available from a number of sources.

Leighfield Forest

Spanning parts of east Leicestershire and West Rutland, Leighfield Forest covers about 12,500ha. The Forest combines ancient woodland, pasture, some arable farming and small villages but the size and quality of wildlife habitat has declined.

LRWT has four fine ancient woodland nature reserves and the Forestry Commission manages two large ancient woodlands. Nearly all the remaining land is in private ownership.

Scheme start

1997

Scheme status

Under development

Progress to date

Conifers have been removed from several woods, including the Wildlife Trust nature reserve at Launde Park Wood and the Forest Enterprise managed Owston Woods. The Forestry Commission JIGSAW scheme has been used to assist in restoring and reconnecting ancient woods through creation of new native woodlands.

Future prospects

Purchasing further land in Leighfield Forest is going to be very difficult. Environmental Stewardship Higher Level Stewardship grants are only available for a small part of the area and the JIGSAW scheme does not exist now. There is also very little publicly owned land. Trying to secure HLS grants for the entire Leighfield Forest at the next review of the scheme (in three years time I think) and perhaps lobbying the Forestry Commission for a new grant scheme to facilitate the linking of ancient woodlands seem the best options. Forging a closer working relationship with the Forestry Commission over their two big woods is also desirable but has not proved to be possible to date.

Rutland Water

Rutland Water is one of the largest man-made lakes in Europe. It has been designated as a Special Protection Area in recognition of its bird populations and is particularly important for wintering wildfowl. The reservoir is fed by the River Gwash and its tributaries.

The reservoir is, however, surrounded by a variety of habitats such as ancient woodland and old meadows. As well as the wildfowl other bird species present include red kite and osprey. The latter is the subject of an introduction programme carried out by Anglian Water and Leicestershire and Rutland Wildlife Trust. The area is also home to many other animals and plants such as several bat species, otter, rare lichens and many butterflies and moths.

Leicestershire and Rutland Wildlife Trust has a large nature reserve at the western end of the reservoir, but is also working with Anglian Water and neighbouring landowners to improve habitats around the entire site. This work now needs to be extended into the Gwash catchment.

Scheme start**Scheme status**

Under development

Progress to date

These are excellent, assuming the continuing support of Anglian Water. Influencing other owners to manage their land in a more wildlife friendly way would be a logical next step. Acquiring some of it to add to the nature reserve should also be considered.

Rutland & North East Leicestershire Limestone

The Oolitic limestone of South West Lincolnshire, North East Leicestershire and East Rutland forms one of Natural England's Natural Character Areas. The Lincolnshire Wildlife Trust, Leics & Rutland Wildlife Trust and NE have formed a partnership to address the conservation of calcareous grassland in this area and have obtained funding to do this. A project officer has been employed by Lincs WT.

Scheme start

2009

Scheme status

Habitat specific

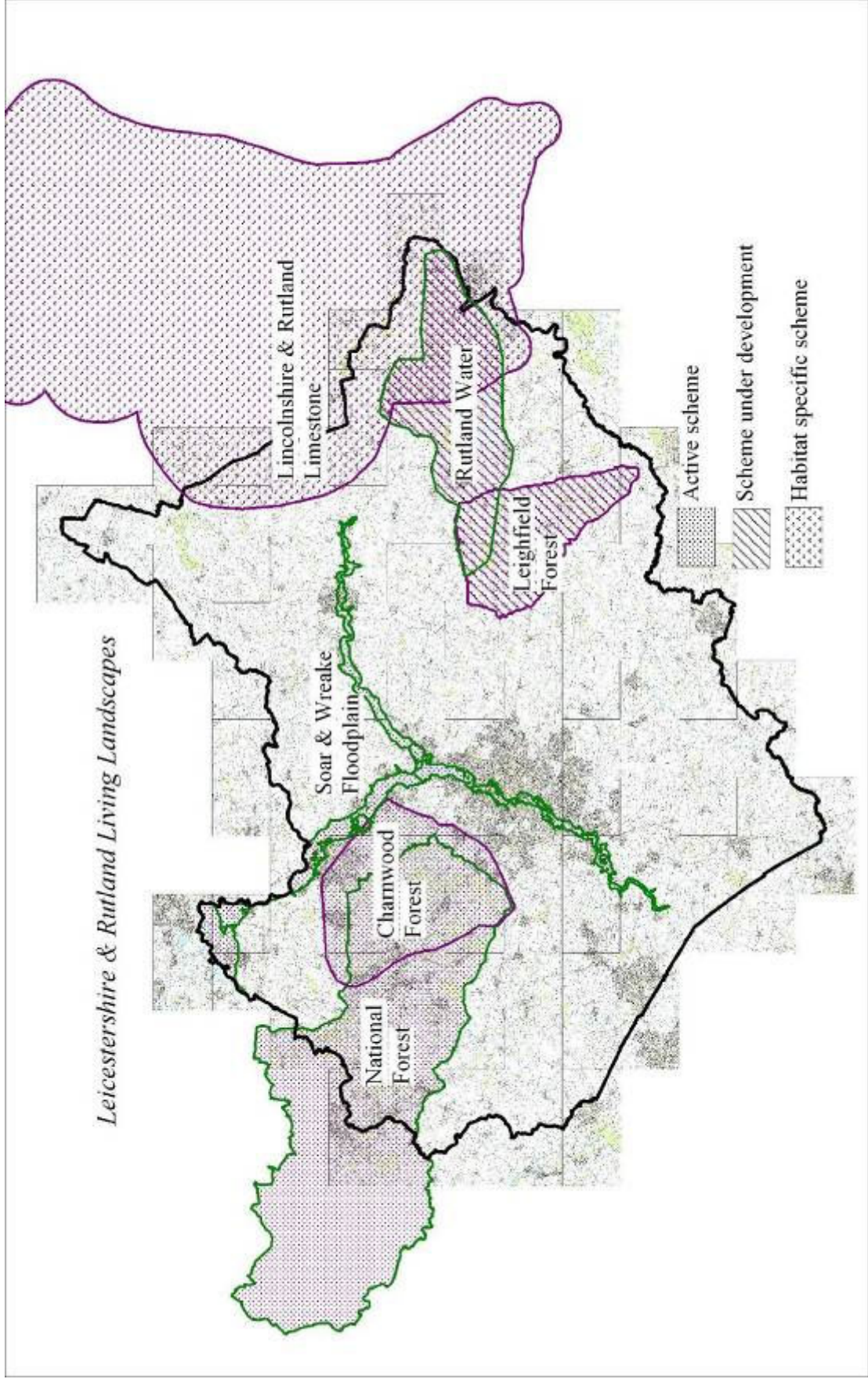
Progress to date

Surveys of roadside verges have been undertaken and equipment purchased by Lincs WT to carry out work on roadside verges. Rutland County Council have substantially improved the manage of the best roadside verges in their care.

Future prospects

Acquiring further land other than old quarries will be very difficult, but the quarries have great potential. Agri-environment schemes could be used to extend the limestone grassland on roadside verges into the adjacent fields, making them more viable. However, development of a functioning ecological entity across this very large area of high grade agricultural land seems unlikely in the foreseeable future.

Leicestershire & Rutland Living Landscapes



10. Habitat creation information

Space for Wildlife - guidelines for habitat creation projects in Leicestershire and Rutland

These guidelines have been produced to aid anyone wishing to create habitat for wildlife in Leicestershire and Rutland, whether on an existing site or a new site, either to improve the wildlife value of their own land or as part of a new development. Set out below are some general principals and considerations to help inform your decision as to which habitat might be most appropriate for your situation.

Before starting

- What is there already? Does something new need to be created or is there existing habitat which just needs to be maintained?
- Allowing a site to develop naturally rather than actively creating a new habitat by planting and other operations may often be better for wildlife (and cheaper to achieve). Abandoned ex industrial 'brown field' sites can be better for wildlife (particularly for butterflies and other invertebrates) than artificially created new habitat
- How big is the area? Some habitats have minimum size requirements. For instance a reedbed should be at least 20 ha in extent to support breeding bitterns
- Large sites support more wildlife than small sites and are usually easier to maintain
- Don't forget that most habitats require some kind of on-going management and that arrangements need to be put in place for this. For instance grasslands require mowing or grazing, reedbeds require cutting, new woodlands, at least in the first few years, require removal of competing vegetation to aid establishment, wetlands may require willow scrub removal etc. If you are unable to commit to long term management consider creating habitats which require little regular management – examples include wet woodland, large areas of open water, scrub, rough grassland
- Is the proposed habitat appropriate for the location? Certain habitats have specific environmental requirements – heathland is restricted to acid soils, calcareous grassland to free draining soils over limestone. High nutrient levels as found in ex-arable farm land are incompatible with some habitats which depend on low soil fertility (heathland, most types of species rich grassland)
- Do you require planning permission (for instance ponds to benefit wildlife created in the open countryside) or appropriate consents (for instance Environment Agency consent for some types of habitat creation in river floodplains; Forestry Commission or Local Planning Authority Consent for tree work/felling)
- Budget. Some habitats have expensive site preparation and establishment costs. It is often more cost effective to work with what is present on the site already rather than to create something from scratch
- Will there be public access. Disturbance may be a problem and will determine what wildlife will benefit from the site. Dogs in particular are detrimental to breeding birds

Choosing the appropriate habitat

Many people wish to create a specific BAP habitat (see below) but in many instances it might be more appropriate to think in more general terms and create habitat belong to one of three broad categories, all of which will benefit wildlife locally:

- Wetland (open water and/or land which has impeded drainage and retains water for part or all of the year or which floods regularly)
- Woodland (land covered with trees or scrub – either planted or naturally regenerating)

- Open land (land with no or low intensity management with little or no agricultural inputs. Includes unmown rough grassland, regenerating natural vegetation and sown or planted vegetation)

Depending on the nature of the site it may be possible to create habitat falling within these categories with much less outlay or commitment to long term management than with some of the BAP habitats. In particular using existing features of the site and allowing a site to develop naturally requires less site preparation, avoids difficulties with sourcing appropriate seed mixes and is often less expensive. Sites which develop naturally can be slower to establish but the wildlife value is often higher than an artificially created habitat - as long as you are prepared to accept what 'nature' brings along (something which is not always predictable!)

If you wish to create one of the local or national BAP (Biodiversity Action Plan) habitats then further information on UK BAP habitats can be found at www.ukbap.org.uk and detailed descriptions can be obtained at www.ukbap.org.uk/library/UKBAPPriorityHabitatDescriptionsfinalAllhabitats20081022.pdf.

Please be aware that a number of the habitats in the UK list do not occur in Leicestershire and Rutland; also that the local BAP habitats may differ from the national ones reflecting local variations and priorities.

This document is not intended to provide detailed guidance on creating new habitat and it is recommended that you obtain expert advice before proceeding with any such project.

Additional information on creating specific habitats in Leicestershire and Rutland is given below.

Floodplain Wetland (UK BAP Coastal and Floodplain Grazing Marsh)

- Must be in the floodplain with the water table at or near the surface for much of the year
- A good choice of habitat for restoring sites used for sand and gravel extraction. Likely to be much cheaper than restoration to return the land to its former state (usually farmland)
- The ideal locations are in the Soar and Wreake Valleys where new sites can link into an increasing network of similar sites
- A varied habitat structure is important here with areas of open water. Be prepared to accept areas dominated by tall weedy species – they are very good food sources for many animals
- On-going management includes grazing unless the site is to be allowed to develop as wet woodland when no long term management is required
- Does not require planting – wetland species soon colonise such sites particularly if subject to occasional flooding from an adjacent river
- Beneficial for birds and invertebrates
- Minimum size about 1 ha. Where the site is to be managed by grazing a larger area is preferable

Eutrophic Standing Water

- Ponds and lakes – no minimum size but larger support more wildlife
- No need to plant except perhaps for very small isolated ponds– aquatic and marginal species can colonise new sites rapidly particularly if adjacent to existing water bodies
- Occasional management might be required to maintain open water
- Appropriate throughout Leicestershire and Rutland

Hedgerows

- Easy to establish although some weed control may be necessary in the first few years
- Appropriate throughout Leicestershire and Rutland

- Some on-going management but hedges allowed to grow tall and thick are better for wildlife than those cut annually

Calcareous Grassland (UKBAP -Lowland Calcareous Grassland)

- Only appropriate in parts of North-east Leicestershire and East Rutland where the soils are derived from the underlying Oolitic Limestone
- Best sites to create this habitat are usually on former Limestone workings where soils are thin and nutrient poor. Ex-arable land is often not suitable because of the high nutrient levels. Such sites require nutrient depletion and removal of competing weed species which make establishment costs high
- The total area of Limestone Grassland in Leicestershire and Rutland has been estimated as less than 30 ha. As a consequence sourcing green hay for seeding new limestone grassland is very difficult. Large areas will require expensive sourcing of non-local seed from specialist suppliers
- On-going management will require annual grazing therefore sites should be at least 1 ha unless adjacent to an existing Calcareous Grassland
- Former quarries are probably best left to develop and be managed as Open Mosaic Habitats on Previously Developed Land (another UKBAP Habitat) which are very good for a large range of wildlife including invertebrates, birds and plants

Heath Grassland (UKBAP Lowland Dry Acid grassland/ Lowland Heathland)

- True heathland dominated by ericaceous shrubs (eg heather) is (as it would seem to have been historically) very rare in Leicestershire and Rutland. Most local heath is a mosaic of acid grassland with scattered ericaceous shrubs as is recognised by the Heath Grassland plan in the local BAP
- Heath grassland is mainly confined to the Charnwood Forest and parts of Northwest Leicestershire
- For heath grassland creation it is essential that the soil is acidic
- The soil fertility should be low. Ex arable land is often not suitable because of the high nutrient levels. Nutrient depletion and removal of competing weed species result in high establishment costs
- On-going management (annual grazing) is necessary to maintain this habitat therefore sites should be at least 1 ha unless adjacent to existing Heath Grassland

Neutral Grassland (UKBAP - Lowland Meadows)

- The soil needs to have low fertility – high levels of nutrients can be detrimental to many meadow flower species and will favour tall rank plant species which will out compete slower growing and shorter species. Without significant nutrient depletion much ex arable land is unsuitable for creating a species rich meadow
- Much time and effort needs to be put into site preparation particularly where invasive weeds such as thistles and docks are present
- Follow up management to support establishment of a species rich sward (eg controlling unwanted weed species) needs to be carried out for several years after sowing
- Introducing flowering plants species into an existing closed grass sward is difficult and can be time consuming and expensive
- Take care with sourcing seed. Obtain from a reputable supplier and ensure all the included flower species are native to the UK and of UK provenance. Wildflower mixes can contain seeds of European origin which differ markedly from the equivalent UK species and these should not be introduced into the wild
- A number of wildflower seed mixes contain species such as Corn Flower, *Centaurea cyanus*, and Corncockle, *Agrostemma githago*, which are plants associated with arable crops and not grassland. As a consequence they are dependant on cultivation in order to continue appearing year after year and will rapidly disappear from a grassland

- Using 'green hay' to seed your grassland requires the identification of a suitable donor site, a large amount of hay and the ability to coordinate cutting and spreading as green hay must be used immediately. In most instances it is usually only the relatively common species present at the donor site which are propagated
- Flower rich meadows require long term on going management (hay cutting or grazing). Small sites less than 1 ha are difficult to manage unless adjacent to an existing meadow site
- Although in the short term a species rich sward may be produced experience suggests that in the long term it is only the relatively common meadow species such as Black Knapweed, *Centaurea nigra*, and Common Sorrel, *Rumex acetosa*, which persist

Broadleaved Woodland (UKBAP - Lowland Mixed Deciduous Woodland)

- Suitable for most soils and sites although some situations may require more ground preparation than others. Very fertile soils, such as ex-arable land, may cause establishment problems as the result of vigorous growth of competitive grass and herb species
- Do not plant woodland on sites with good existing wildlife value or where it might break up blocks of existing good habitat or cause isolate them in the landscape
- Although there is no minimum size small sites are more likely to be affected by adjacent land use and are best located near to existing woodland for the greatest benefit to wildlife
- Plant a mix of native broadleaf tree and shrub species of local or UK provenance – a reputable supplier should be able to source these for you
- Plan to have a network of paths and open areas to vary the future woodland structure and maximise the benefit to wildlife
- Site preparation is important and may be costly where competitive species are present. Where deer numbers are high, fencing will be necessary to protect the young trees from browsing
- Allow for at least five years of on-going management during the establishment phase of the woodland – mainly weed control and mowing
- Long term management includes thinning and path mowing
- Where sites already have naturally established tree and shrub seedlings allow these to remain – consider allowing the site to regenerate naturally rather than planting trees – this is a long term process but will eventually allow the development of a more varied 'natural' woodland

Urban Habitat (UKBAP - Open Mosaic Habitats on Previously Developed Land)

- Post-industrial land and other 'wasteland' can have considerable value for wildlife. Before carrying out any habitat creation scheme on such sites undertake a wildlife survey to identify which species are present and what their habitat requirements might be
- Try to avoid the temptation to 'tidy up' post-industrial sites as this can result in a reduction in its value for wildlife
- Bare ground is itself important for a number of species – particularly invertebrates - and some should be left in any habitat restoration scheme for these sites. The best option is a mosaic of open and vegetated ground with a mix of low growing herbs and taller scrub species
- Where fertility is low on-going management to control vegetation will be minimal. Where growth is more vigorous scrub control may be necessary to maintain vegetation structure

Reedbeds

- Reedbeds themselves are home to a relatively few species, although some of these are quite rare. The UKBAP Reedbed Habitat Action Plan was conceived to benefit breeding bittern – the minimum size for a reedbed to support breeding bittern is 20 ha. There are no reedbeds of this size in Leicestershire and Rutland
- Smaller reedbeds can benefit wildlife where they form part of a mosaic of wetland habitats

- Reedbeds are suitable for nutrient enriched sites. They can be established in and around areas of shallow open water which do not dry out
- Establishment costs can be high particularly where water control structures are planned to aid future management. Machinery and planting costs can be high when preparing and setting out a site. Establishment is quickest when transplanting large clumps of reed from an existing reedbed using an excavator bucket but cost may be high particularly where transport is required to get the reed to its new site. Planting out plugs of reed grown in a nursery is labour intensive and the young plants will require protection from grazing.
- Small reedbeds can be left to develop naturally but may become colonised by trees and end up as wet woodland. Once established larger reedbeds will require a cycle of annual rotational cutting and removal of litter in addition to removing any invading willow scrub in order to maintain them

Wet Woodland

- Wet woodland was probably the dominant vegetation throughout the floodplains of all water courses in Leicestershire and Rutland. However most was cleared for agriculture long ago and it is now rare locally
- Wet woodland is dominated by trees such as willow and alder and is particularly valuable for birds and invertebrates
- Wet woodland is suitable for any area of permanently or seasonally waterlogged ground but should not be established on existing good wetland habitat
- Willows and alder are easy to establish from cuttings provided conditions remain wet. Where nearby trees provide a good seed source natural regeneration will result in the rapid development of wet woodland on water-logged sites provided grazing animals are excluded and the site is not mown
- Wet woodland requires little or no on-going management. Old trees should be left to fall over and decay in situ. Willow in particular will layer itself from fallen trunks and branches creating a thicket of new trees. Dead wood should not be tidied up

Lowland Wood Pasture and Parkland

- Parkland in which large open grown trees are grown in a matrix of grazed grassland is a suitable habitat for most parts of Leicestershire and Rutland.
- The site should be assessed beforehand. Species rich grassland should be avoided since the plants may not tolerate shading and the presence of trees might interfere with the management of the site including hay cutting
- For the greatest long term benefits to wildlife planting new parkland adjacent to existing parkland is best
- Where there is existing parkland assess whether there are sufficient young trees to maintain the habitat in the future
- Provided the site is already grassland the establishment costs are relatively low. The trees need to be protected from browsing and suppression of competing weeds is essential in the first few years. Long term management of the trees is minimal but annual management of the grassland matrix by grazing or mowing is necessary

Field Margins

- Field margins act as a buffer zone between an agricultural crop and adjacent land. They can function to protect adjacent good habitat from the effects of agricultural chemical applications such as fertilisers and pesticides and can act as wildlife habitat themselves
- Field margins managed for wildlife can be established wherever agricultural crops are grown and may form part of an Environmental Stewardship Scheme
- Wider margins with no inputs of chemicals are better for wildlife
- Physical management may be similar to that of the adjacent crop (cultivated margins) or be different (grass margins / arable fields)

Information on habitat creation can be found on the following websites:

- **Wetland creation**

www.pondconservation.org.uk

www.herpconstrust.org.uk

www.lrdg.org.uk

- **Woodland creation**

www.nationalforest.org/woodlandcreation/

www.forestry.gov.uk/england-farmwoods

www.woodlandtrust.org.uk/en/plant-your-own-wood/Pages/on-your-own-land.aspx

- **Woodland management**

www.woodlandtrust.org.uk/SiteCollectionDocuments/pdf/policy-and-campaigns/woodland-restoration/paws-guide-09.pdf

www.countrysideinfo.co.uk/woodland_manage/wood_manage.htm

- **Open land for wildlife**

www.grazinganimalsproject.org.uk

www.rspb.org.uk/ourwork/farming/advice/details.asp?id=204231

- **Managing farmland for wildlife**

www.fwag.org.uk/technical.htm

www.naturalengland.org.uk/information_for/farmers_and_land_managers

www.rspb.org.uk/ourwork/farming/advice/

www.plantlife.org.uk/uk/assets/saving-species/saving-species-publications/New%20Priorities%20for%20Arable%20Plant%20Conservation.pdf

www.farmwildlife.info

- **Hedge planting**

<http://www.hedgelink.org.uk/hedgelink/files/NE%20HEDGEROW%20PLANTING.pdf>